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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/879,934	06/14/2001	Yasumi Sago	K-1984	4444

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Manabu Kanesaka  
Kanesaka and Takeuchi  
1423 Powhatan Street  
Alexandria, VA 22314

EXAMINER

KACKAR, RAM N

ART UNIT

PAPER NUMBER

1763

DATE MAILED: 08/20/2003

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Please find below and/or attached an Office communication concerning this application or proceeding.

**Office Action Summary**

Application No.

09/879,934

Applicant(s)

SAGO ET AL.

Examiner

Ram N Kackar

Art Unit

1763

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 24 July 2003.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 29-58 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 29-58 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☒ The proposed drawing correction filed on 4/16/03 is: a) ☒ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

**Priority under 35 U.S.C. §§ 119 and 120**

- 13) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All   b) ☐ Some \*   c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

**Attachment(s)**

- 1) ☒ Notice of References Cited (PTO-892)                      4) ☐ Interview Summary (PTO-413) Paper No(s). \_\_\_\_\_
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)                      5) ☐ Notice of Informal Patent Application (PTO-152)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) \_\_\_\_\_                      6) ☐ Other: \_\_\_\_\_

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## DETAILED ACTION

### *Claim Rejections - 35 USC § 103*

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. Claims 29, 31, 33-34, 36-44, 46, 48-49 and 51-58 are rejected under 35 U.S.C. 103(a) as being unpatentable over Mountsier et al (US 5810933) in view of Moslehi (US 5936829).

Mountsier et al disclose an electrostatic chuck (Fig 1 and Col 1 lines 39-54), comprising a dielectric layer (Fig 1-4), chucking electrode (Fig 1-2), temperature control (Col 1 line 41 and Col 8 lines 40-49), chucking power source (Fig 1-14), chucking surface concaves for heat exchange gas (Fig 11b), under pressure (Col 7 line 48), gas distribution concave (Fig 11b-74) which are deeper than heat exchange concaves (Fig 11b), gas distribution concaves formed in coaxial with the center of the stage (Fig 7), the depth of heat exchange concaves being below 40  $\mu\text{m}$  (Col 10 line 65) and the depth of gas diffusion concaves being 700  $\mu\text{m}$  (Col 13 line 14), the contact area being 10% (Col 9 line 42), main body cooling cavity (Fig 3) and a heat conducting layer between dielectric and main body for cooling (Fig 5-54).

Area of gas diffusion concaves is indirectly disclosed to be at least 5% (on a wafer of 200 mm diameter (Col 11 line 37) and diffusion concave width of 0.5 to 2.5 mm (Col 13 line 16) and plan view of Fig 15a to 19 b will yield an estimate of at least 5%).

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Mountsier et al disclose radial and circumferential gas diffusion concave inside an outer circumferential concave (Fig 17 a) but do not disclose a plurality of circumferential concaves containing gas inlet connected at the crossing of circumferential and radial concave.

Moslehi discloses another chuck and discloses a plurality of circumferential concaves (Fig 3) containing gas inlet connected at the crossing of circumferential and radial concave (Fig 3-74).

Since additional circumferential concaves is an alternative and equivalent way for distributing heat transfer gas and helps in obtaining better uniformity closer to center, it would have been obvious for one of ordinary skill in the art at the time of invention to have additional circumferential concaves and have heat transfer gas inlet connected at the cross of radial and circumferential concaves.

3. Claims 30, 32, 35, 45, 47 and 50 are rejected under 35 U.S.C. 103(a) as being unpatentable over Mountsier et al (US 5810933) in view of Moslehi (US 5936829) as applied to claim Claims 29, 31, 33-34, 36-44, 46 and 48-49 and further in view of Sexton et al (US 6377437).

Mountsier et al do not disclose lift pin provided in gas introduction channel.

Sexton et al disclose cooling gas flowing through lift pin holes (Abstract and Fig 9-46).

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Therefore it would have been obvious for one with ordinary skill in the art at the time invention was made to use gas channel hole for dual purpose of lift pin hole as well as cooling gas channel to make the design simpler and economical.

***Conclusion***

4. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Yamada et al (5946183 - Fig 7) discloses circumferential and radial concaves for heat transfer gas distribution.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Ram N Kackar whose telephone number is 703 305 3996. The examiner can normally be reached on M-F 8:00 A.M to 5:P.M.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Gregory Mills can be reached on 703 308 1633. The fax phone numbers for the organization where this application or proceeding is assigned are 703 872 9310 for regular communications and 703 872 9311 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703 308 0661.

RK  
August 14, 2003

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GREGORY MILLS  
SUPERVISORY PATENT EXAMINER  
TECHNOLOGY CENTER 1700

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